



## **SAW Components**

### **SAW GPS Extractor Filter**

GPS Extractor

<b>Series/type:</b>	<b>B7742</b>
<b>Ordering code:</b>	<b>B39162B7742E310</b>
<b>Date:</b>	<b>April 24, 2009</b>
<b>Version:</b>	<b>2.3</b>



## SAW Components

B7742

### SAW GPS Extractor Filter

1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz

#### Data Sheet



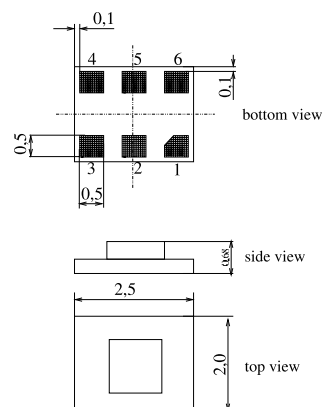
#### Application

- Low loss RF GPS Extractor filter for mobile phones using common antenna for GPS and Cellular/PCS/K-PCS/WCDMA/Bluetooth band
- Placed between antenna, GPS and Cellular/PCS/K-PCS/WCDMA/Bluetooth band
- No switches and control lines required
- Integrated low loss GPS filter with single ended output 50  $\Omega$
- Very low insertion attenuation in GPS and NON-GPS band
- High selectivity of GPS filter
- Low amplitude ripple in all bands
- Usable passbands 2 MHz (GPS), 70 MHz (Cellular), 120 MHz (K-PCS), 140 MHz (PCS), 60 MHz (WCDMA Band I), 83.5 MHz (Bluetooth)



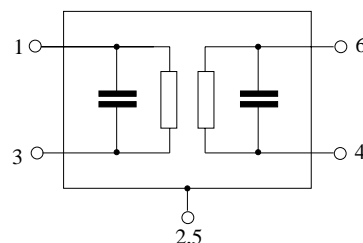
#### Features

- Package size 2.5 x 2.0 x 0.68 mm<sup>3</sup>
- Package code DCS6N
- RoHS compatible
- Approximate weight 0.015 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



#### Pin configuration

- 1 Input antenna
- 3 Output GPS band
- 6 Output NON-GPS band (Cellular/K-PCS/PCS/WCDMA/Bluetooth band depending on external matching)
- 4 To be grounded
- 2,5 Ground



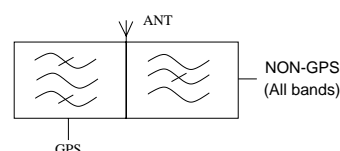

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**Characteristics**
**Matching Circuit 1<sup>1)</sup>: All Bands + GPS (1575.42 MHz)**

 Temperature range for specification:  $T = -30\text{ °C to }+85\text{ °C}$ 

 Terminating input antenna impedance:  $Z_{ANT} = 50\ \Omega \parallel 6.8\text{ nH}$ 

 Terminating GPS impedance:  $Z_{GPS} = 50\ \Omega$ 

 Terminating NON-GPS impedance:  $Z_{nGPS} = 50\ \Omega \parallel 6.8\text{ nH}$ 


					<b>B7742</b>			
					<b>min.</b>	<b>typ. @ 25 °C</b>	<b>max.</b>	
<b>Maximum insertion attenuation</b>								
				$\alpha_{max}$				
Antenna-GPS	1574.42	...	1576.42	MHz	—	1.1	1.6	dB
Antenna-NON-GPS	824.0	...	960.0	MHz	—	0.8	1.3	dB
Antenna-NON-GPS	1710.0	...	1990.0	MHz	—	0.8	1.3	dB
Antenna-NON-GPS	2110.0	...	2170.0	MHz	—	1.1	1.5	dB
Antenna-NON-GPS	2400.0	...	2483.5	MHz	—	1.1	1.6	dB
<b>Attenuation</b>								
				$\alpha$				
Antenna-GPS	824.0	...	960.0	MHz	33	39	—	dB
Antenna-GPS	1710.0	...	1990.0	MHz	33	37	—	dB
Antenna-GPS	2110.0	...	2170.0	MHz	33	37	—	dB
Antenna-GPS	2400.0	...	2483.5	MHz	35	39	—	dB
<b>VSWR (Antenna port)</b>								
GPS band	1574.42	...	1576.42	MHz	—	1.3	1.8	
NON-GPS band	824.0	...	960.0	MHz	—	2.0	2.5	
NON-GPS band	1710.0	...	1990.0	MHz	—	1.4	2.0	
NON-GPS band	2110.0	...	2170.0	MHz	—	1.6	2.1	
NON-GPS band	2400.0	...	2483.5	MHz	—	1.8	2.4	
<b>VSWR (GPS port)</b>								
GPS band	1574.42	...	1576.42	MHz	—	1.2	1.8	
<b>VSWR (NON-GPS port)</b>								
	824.0	...	960.0	MHz	—	2.0	2.5	
	1710.0	...	1990.0	MHz	—	1.4	2.0	
	2110.0	...	2170.0	MHz	—	1.6	2.1	
	2400.0	...	2483.5	MHz	—	1.8	2.4	
<b>Isolation between NON-GPS and GPS path</b>								
				$\alpha$				
	824.0	...	960.0	MHz	33	37	—	dB
	1710.0	...	1990.0	MHz	33	37	—	dB
	2110.0	...	2170.0	MHz	33	37	—	dB
	2400.0	...	2483.5	MHz	35	40	—	dB

1) Further Matching Circuits are specified in B7742 Appendix



**SAW Components**

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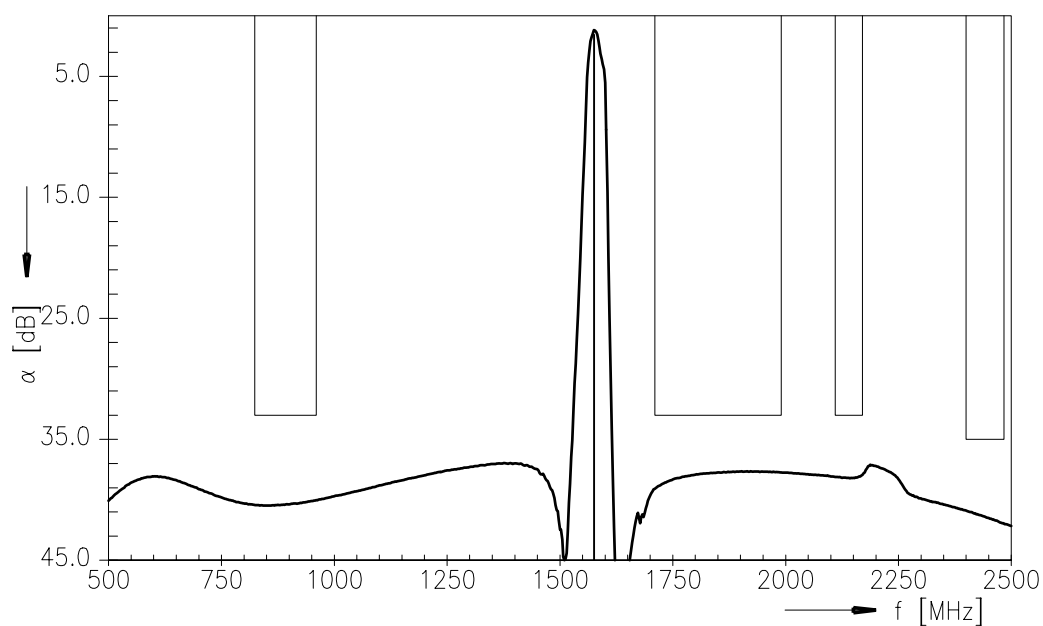
**SAW GPS Extractor Filter**

**1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz**

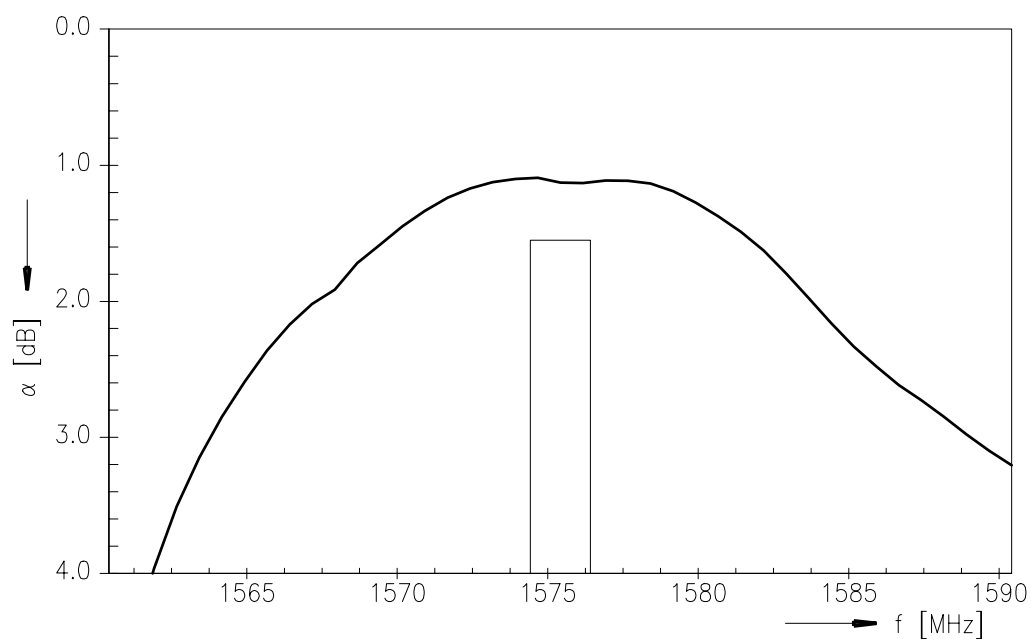
**Data Sheet**



**Antenna - GPS (transfer function for matching circuit 1):**



**Antenna - GPS (transfer function passband for matching circuit 1):**





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**B7742**

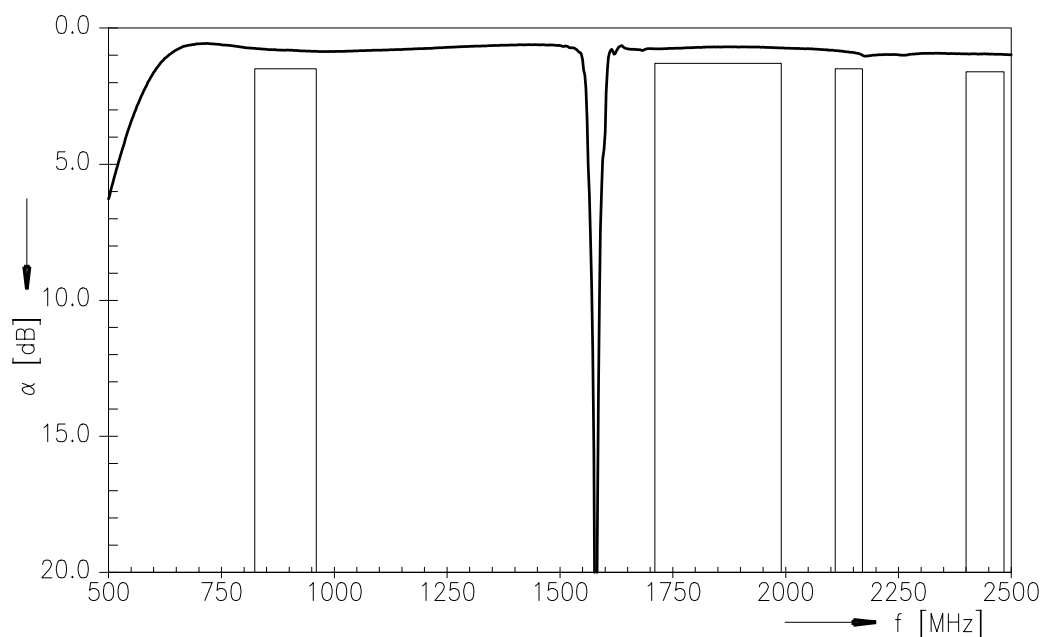
**SAW GPS Extractor Filter**

**1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz**

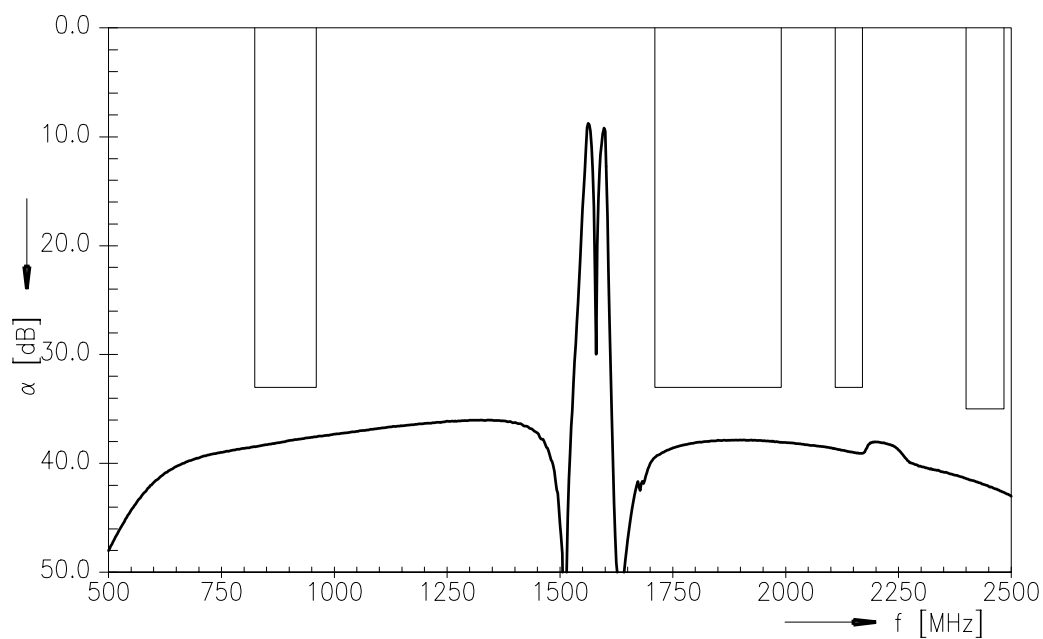
**Data Sheet**



**Antenna - NON-GPS (transfer function for matching circuit 1, all bands):**



**Antenna - NON-GPS (isolation, transfer function for matching circuit 1, all bands):**





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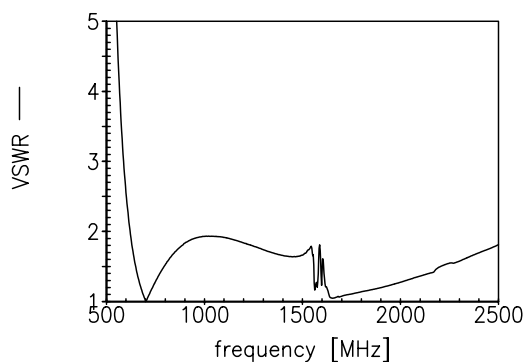
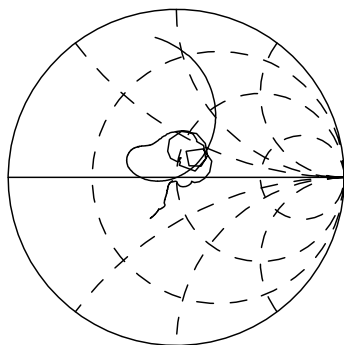
**1575.42 / 859 / 1810 / 1920 / 2140 / 2441.75 MHz**

**Data Sheet**

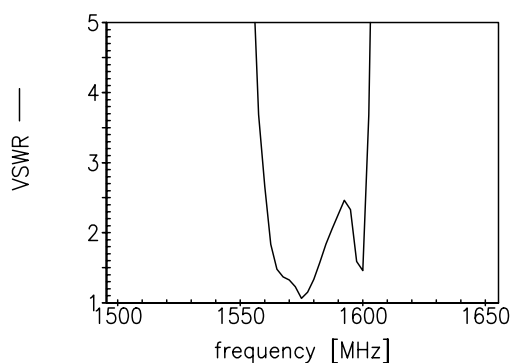
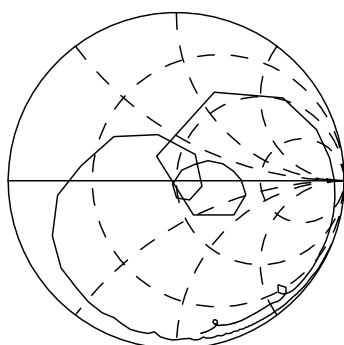


**Smith charts / VSWR (for matching circuit 1, all bands)**

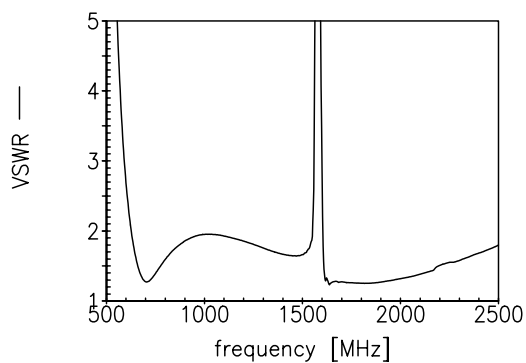
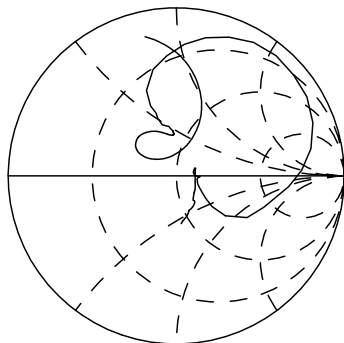
**S<sub>11</sub> Antenna**



**S<sub>22</sub> GPS**



**S<sub>33</sub> NON-GPS**





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<b>Data Sheet</b>	<b>SMD</b>

#### Maximum ratings

Operable temperature range	T	-30/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at				
824 ... 960 MHz	P <sub>IN</sub>	31	dBm	
1710 ... 1990 MHz	P <sub>IN</sub>	31	dBm	effective power in the on-state
1850 ... 1990 MHz	P <sub>IN</sub>	31	dBm	continuous wave signal
2400 ... 2483.5 MHz	P <sub>IN</sub>	31	dBm	

<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



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<b>Data Sheet</b>	<b>SMD</b>

## References

<b>Type</b>	B7742
<b>Ordering code</b>	B39162B7742E310
<b>Marking and package</b>	C61157-A7-A116
<b>Packaging</b>	F61074-V8153-Z000
<b>Date codes</b>	L_1126
<b>S-parameters (unmatched)</b>	B7742_NB.s3p B7742_WB.s3p
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
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